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Supreme Court of the United States

October Term 1941. No. 37

THE CUNO ENGINEERING CORPORATION,
Petitioner,

vs.

THE AUTOMATIC DEVICES CORPORATION,
Respondent.

**BRIEF FOR RESPONDENT ON WRIT OF CERTIORARI
TO THE UNITED STATES CIRCUIT COURT OF
APPEALS FOR THE SECOND CIRCUIT.**

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BRIEF FOR RESPONDENT ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT OF APPEALS FOR THE SECOND CIRCUIT.

The Petition for Certiorari was allowed only on the issue of validity of the patent in suit, and the same is true in No. 6, *The Automatic Devices Corp. v. Sinko Tool & Mfg. Co.*, from the Seventh Circuit.

Opinions of the Courts Below.

The opinion of the Court of Appeals for the Second Circuit, holding claims 2, 3 and 11 of the Mead patent in suit valid and infringed, is reported in 117 Fed. (2d) 361, and appears at pages 506-510 of the Record.*

The opinion of the District Court, holding claims 2, 3 and 11 of the Mead patent not infringed, is reported in 34 F. Supp. 146, and appears at pages 483-497 of the Record.

The opinion of the United States Court for the Northern District of Illinois in the case of *Automatic Devices Corporation v. Sinko Tool & Manufacturing Company*, now Case

* Since the original folio numbers and the printed record numbers differ, it should be noted that reference in this Brief is made to the printed record.

No. 6 in this Court, holds claims 2, 3 and 11 of the Mead patent valid and infringed by the Sinko cigar lighter, is reported in 42 U. S. P. Q. 261, and appears at pages 239-241 of the Record in Case No. 6.

The opinion of the United States Circuit Court of Appeals for the Seventh Circuit, holding claims 2, 3 and 11 of the Mead patent invalid and not infringed, is reported in 112 Fed. (2d) 335 and appears at pages 502-517 of the Record in Case No. 6.

Jurisdiction.

This case is before this Court on Writ of Certiorari to the United States Circuit Court of Appeals for the Second Circuit, granted by this Court on April 14, 1941 (R. 518).

Summary of Argument.

1. The claimed Mead invention is for an automatic wireless cigar lighter such as now extensively used in automobiles.
2. Mead was the first in the art to produce an automatic wireless cigar lighter. His invention is new and useful.
3. Mead's claimed combination was neither known nor suggested by the prior art.
4. The Copeland patents do not disclose the Mead invention.
5. The extensive use of the Mead invention in commercial cigar lighters demonstrates its utility and importance in the art.
6. The decision of the Court of Appeals in this case, holding that claims 2, 3 and 11 of the Mead patent are valid as they read, should be affirmed, and the decision of the

Court of Appeals for the Seventh Circuit in Case No. 6, holding these Mead claims invalid, should be overruled.

7. Petitioner's arguments, as stated in its brief, are based on false premises, many of which are misleadingly stated and unsupported by the record, and none substantiates petitioner's argument that claims 2, 3 and 11 of the Mead patent are invalid.

ARGUMENT.

The Invention of the Patent in Suit.

The Mead patent (R. 289-295), which relates to improvements in wireless electric cigar lighters of the type now extensively used on automobiles, discloses the first *automatic* wireless cigar lighter.

A *wireless* cigar lighter is one in which an electrical glow member or igniter coil carried by a *removable* plug or igniting unit is brought to incandescence while mounted on a holding device socket by turning or pushing the plug so as to close a circuit leading to the igniter coil, after which the plug with the coil is bodily taken by hand from the holder in which it normally rests and the hot coil applied to the cigar or pipe or cigarette as one would a hot coal or match; the heat stored in the coil, coupled with suction applied to the pipe, etc., by the smoker, igniting it. The plug has no wires or other means connecting it with the holder when removed for use, hence the name "wireless" or "cordless". Thus far the device was old at Mead's date, and is shown, for example, in the Morris patent No. 1,376,154 (R. 386).

In 1928 Casco Products Corporation (later respondent's licensee) introduced the Morris wireless lighter, which car manufacturers soon began to adopt as standard equipment on their cars (R. 73-74).

In all wireless lighters prior to Mead, the operator closed the energizing circuit by manually operating the igniter plug against the tension of a spring normally holding the circuit open. This was done, for example, either by pushing in the plug, as in Morris (R. 386), or by moving a button on the plug as in Zecchini (R. 390), or by rotating the plug as in Metzger (R. 401). To keep the circuit closed, the operator had to hold the plug by hand for an interval of a quarter of a minute or so until, depending upon experience or guesswork, he thought the coil heated enough for use, whereupon he pulled out the plug and applied it to his pipe, etc.

Mead made the wireless cigar lighter *automatic*—first, by making it unnecessary to keep the hand on the plug while the coil is heating up, second by automatically opening the circuit (and keeping it open) immediately upon the igniter coil reaching the predetermined temperature for use, and, third, by indicating that the device is ready for use by the return of the manually operated part to normal position and the resulting sound produced thereby (R. 127).

In accomplishing these results, he made the automatic means for opening the circuit and throwing back the plug *responsive to the temperature of the igniter coil*; that is, by his means, the heat of the igniter is predetermined, and that, in turn, delivers the lighter, so to speak, ready for use.

The practical advantages of these improvements are that they permit the driver of an automobile to use both hands for driving purposes, except for the split second required to initiate the heating operation (pushing in or turning the knob of the plug) and subsequently to remove the plug and coil for use when it has "clicked" off. They insure that the igniter coil is just the right temperature for use, neither too hot nor too cold, and thus eliminate guesswork attendant upon the use of the manually controlled lighter. And they avoid burning out of the igniter coil (R. 91).

Mead illustrated rotary motion of the plug to close and open the circuit (like Metzger) instead of longitudinal motion of the plug (Morris), or of a part of it (Zecchini). These were clear equivalents.

Bundy Mfg. Co. v. Detroit Time-Register Co., 94 F. R., 524—C. C. A., Sixth Circuit; in which a turning movement in a time recorder was held equivalent of a longitudinal one.

Mead's device, as illustrated in the drawing of the patent, was comparatively large and cumbersome, being designed to be clamped on the instrument board and not adapted for through-the-board mounting as required for *standard equipment* on cars. That later developed to be the principal market (R. 79-80). Car manufacturers desired a lighter on the car when sold. Mead, as illustrated, would take up more room upon the instrument board than automobile manufacturers were able to assign for it (R. 75). All this required much development, and patents on the improvements and adaptations were secured by respondent—known as the Cohen and Johnson patents—but all of them were held invalid by the District Court and the Court of Appeals, both in this case and in the companion case at bar; this for the reason that Mead's invention exhausted the field and the later patents did not advance it materially.

Within his field, Mead was a primary improver, since for the first time in the art he obtained a wireless cigar lighter with automatic operation.

Soon after Mead's automatic lighter came upon the market, it came to the notice of Cohen, then and now the President of Casco, respondent's licensee. The evidence shows (R. 74-75) that he recognized its merits and resolved to incorporate the Mead invention, with its automatic opera-

tion, in cigar lighters of the "push-in" type, which by that time were enjoying substantial acceptance by the public and by car manufacturers (R. 74).

In due course, rights under the Mead patent were acquired and experiments were carried on to incorporate the Mead invention in a cigar lighter of the push-in (as distinguished from rotary) type which would meet the car manufacturers' requirements in regard to small size, to fit the small hole they assigned it in the instrument panel, and which at the same time would be susceptible of large production at a low price and faultless in operation (R. 76).

This being done, the resulting Casco automatic cigar lighter was put on the market (R. 78). One after another of the car manufacturers adopted it as its standard equipment (R. 78), and in a few years this automatic cigar lighter practically displaced the non-automatic type, as shown by the chart, Plaintiff's Exhibit 26 (offered R. 81), which shows that by 1938 out of a total of 1,159,253 wireless cigar lighters sold by Casco Corporation, 977,393, or about eighty-four per cent, were of the automatic type in spite of the fact that the wholesale prices to car manufacturers were from ten to fifteen cents per lighter higher for the automatic than for the non-automatic lighters (R. 78).

In 1938, Sinko (respondent in Case No. 6) began to market an automatic lighter embodying the Mead invention, and in 1939 Cuno (petitioner in this case) did likewise. Both had been large manufacturers of the non-automatic devices, but the new type soon became the bulk of their business.

The fact is incontrovertible that not only had the art missed entirely what Mead did and was concentrating on detail improvements of the non-automatic lighter—the lighter that then held the market; but that Mead's invention, once proved, caused the displacement of practically all prior devices.

The Patent in Suit.

In the illustrative example of the invention disclosed in his patent (R. 289-295), Mead showed a wireless type cigar lighter consisting of the holding device (Fig. 1) and the removable igniter unit or plug (Fig. 8).

The holding device has two terminals, namely, the socket member 41 and the spring terminal 52, connected to opposite poles of a battery by the wires 57 and 58 respectively. The socket 41 supports the igniting unit on the base 34 and is rotatably mounted thereon in order that a contact 75 carried by the igniter unit may be moved into circuit-closing position (Fig. 14).

The igniter unit has an igniter resistance coil 83 connected at its outer end with a cup 82 in engagement with the shell contact 65. The inner end of the igniter coil 83 is connected through the stud 84 to the contact pin 75 radially extending through the shell 65 but insulated therefrom. The igniter unit, when carried by the socket in normal position on the holding device (Fig. 16) has its contact shell 65 engaging the socket of the holding device, but the contact 75 does not touch the terminal 52. Hence, the circuit is open.

To initiate operation of the cigar lighter, the igniting unit is manually turned by means of its protruding knob 62 from the position shown in Fig. 16 to the position shown in Fig. 14 until the contact 75 is caught by the detent 53 of the spring terminal 52, thereby establishing an electrical connection from the battery through the igniter coil 83 so that the latter may start to heat.

As the igniting unit contact is moved into closed-circuit position (Fig. 16), the movement of the socket causes a spring 47 to become tensioned so that it will return the igniter unit contact and socket to the "off" position upon release of the contact.

The spring terminal 52 is held in the position shown in Fig. 14, by means of an auxiliary spring 54. The holding action of the spring detent 52, 53, which is reenforced by the spring 54, is in opposition to the action of the spring 47 tending to move the igniter unit to the "off" position shown in Fig. 16.

The Mead patent specification (R. 293, line 112 to R. 294, line 11), brings out that either spring 54 or spring 47, or both, may be made of bimetallic material and so located with respect to the igniter coil that the heat from the igniter acts on the bimetallic spring 54 to weaken it or on the bimetallic spring 47 to strengthen it, with the result that when the igniter coil reaches the predetermined temperature for use, the return spring 47 becomes effective to move the igniter unit contact 75 to the "off" position shown in Fig. 16, out of engagement with the terminal 52. The spring 47, cooperating with the socket supporting the igniting unit, keeps the igniter unit contact permanently in its open-circuit position in which even when the bimetallic means cools off, the contact 52 will not touch the contact 75 until it is again manually moved to closed-circuit position.

To operate Mead's device, therefore, it is merely necessary to rotate the knob 62 until the circuit-closing contact 75 is caught by the heat-controlled detent 53 where it will remain temporarily latched by the latter without further action or attention by the operator. As soon as the igniter coil 83 is brought to the desired temperature for use as predetermined by the setting of the bimetallic elements, the bimetallic elements heated from the heating element cause the contact pin 75 to be released from the detent 53 and moved to open-circuit position.

The return of the knob to open-circuit position is accompanied by a click (now familiar to all smoking automobile drivers and passengers), and both movement and sound indicate that the igniter coil is at the proper temperature, and that the igniter with the heat-storing resist-

ance coil may be manually removed from the socket and applied to the cigarette, cigar or pipe like a hot coal or ember.

The igniter plug is restored to the socket after use, and is retained in open-circuit position until next needed.

With Mead's invention, the operator may use both hands for driving and devote his entire attention thereto, during the heating-up period—contrasted with one-hand driving for about a quarter of a minute required with all prior wireless lighters; the igniter coil is just hot enough for use when the circuit is automatically opened and the signal given—contrasted with close observation or guesswork previously necessary; over-heating or burning out of the igniter coil with its attendant dangers is prevented—for which there was no previous protection in wireless lighters (R. 91); and, lastly, should the operator fail to remove the igniter after the igniter coil is hot, no harm can result because the circuit is automatically opened and will not again close until the operator manually moves the igniter to the "on" position.

These were new and important advantages which seem to us to support patentability. That there is *novelty* is, we think, undisputable. That there is *utility* is fully established.

Mead's Commercial Devices.

Mead's patent is not a "paper patent", for his lighters, substantially as he illustrated them, were made and sold for several years by Mead's assignee the Jessop Company (R. 270-271), under the name of Jesco Automatch. Defendant's Exhibit C (R. 341; offered R. 226) is a drawing of this device.

Petitioner disputes this statement on the ground that these lighters differed from the illustration of the Mead patent by having the heat-responsive return spring located

outside the socket rather than inside. As a matter of fact, it makes no fundamental difference whether the spring is inside or outside the socket, for, when it was placed around the outside the socket in the Jesco Automatch (one of Mead's productions), the socket was provided with apertures through which the heat from the igniter coil could properly reach the bimetallic member. Petitioner's point is weak at best, but it is interesting to note that when Petitioner came to make its automatic cigar lighter, it followed the Mead patent and put its heat-responsive member 16 inside the socket (see Plaintiff's Exhibit 1A, R. 280; offered R. 15-16).

The sales of the Jesco Automatch were substantial, being between 1500 and 2000 (R. 262). They were offered to Montgomery Ward and appeared in the catalog of that company for the Fall and Winter of 1928-1929, Plaintiff's Exhibit 36 (R. 333-334—offered R. 177), and again for the Spring and Summer of 1929, Plaintiff's Exhibit 28 (R. 313-314—offered R. 192).

Petitioner is justified in saying the sales were few. They were, in contrast with the mass-production of Casco or petitioner. But Mead's company was only introducing the devices by offering them to automobile owners. The parties here have the car manufacturers for their customers. The Jessop Company was essentially a selling company, and, to secure its source of supply, bought the Central Stamping Company—in poor financial condition (R. 255)—with which Mead was connected and attempted to continue as a manufacturer (R. 262). However, it was dissatisfied with the general conditions existing in the automotive accessory business, including other things besides these lighters, and decided to get out of it (R. 263).

Petitioner argues that Mead's early commercial devices were a failure because of their construction. The company had some lighters returned, but this is to be expected when manufacturing a new and unknown article, and it is not at

all uncommon. Apparently, the device was sufficiently satisfactory to be accepted by Montgomery Ward, which is quite careful to accept for placing in its catalog only devices of unquestionable merit (R. 264). Certainly, if an inordinate number of devices were returned to the Mail Order House, they would not have been cataloged for the second season, nor would there have been reorders from the same customers, as evidenced by the orders listed in Plaintiff's Exhibit 39 (R. 337, offered R. 205). It is clear enough that the device was withdrawn from the market because of business conditions and not because of any mechanical difficulties (R. 265).

It is established that these old Mead lighters properly serve their function. One of them was successfully operated in the presence of the trial Court (R. 28). This is Plaintiff's Exhibit 12.

However, the case depends on what is disclosed and claimed in the Mead patent and not upon the little or great success of those early commercial embodiments. If, as we contend and as no one can successfully dispute, the specifications and drawings of the Mead patent sufficiently disclose the invention so that it may be practiced by those skilled in the art, Mead has done all that the Statutes require of him. It was the Mead improvement that led to Casco's development, and Cohen testifies that the Mead patent was essential to it (R. 75).

Petitioner argues that the Mead patent is defective because it does not specify the kind of bimetallic material to be used in the device, but, as repeatedly admitted by petitioner's expert Wolfson (R. 130-133), that is true of the prior patents relied upon by petitioner. The obvious answer is that given by Wolfson (R. 133):

"The conditions would govern the choice of metal, and experimentation would determine which metal was

best. You have a general specification of metal due to the conditions, and from that point on you have to experiment to find the best one."

Clearly, novelty of the patent could not have depended upon the kind of material employed.

The Mead Claims in Issue.

Claims 2, 3 and 11 of the Mead patent, which are before the Court, are as follows (R. 294-295):

2. In a device of the class described, a removable heating member having an electrical heating unit, a socket for receiving and holding said heating member, electrical current supply terminals, means for moving said heating member to a position for establishing an energizing circuit to said heating unit, and means responsive to the temperature of said heating unit for interrupting said energizing circuit.

3. In a lighting device for cigars and the like, a removable heating member having an electric heater, a support for receiving and holding said heating member, current supply terminals on said support, said heating member being movable on said support to a position where said heating unit is energized from said terminals and means responsive to the temperature of said heating unit for controlling the heating thereof.

11. In an electric lighter of the class described, a base member, a heater member movably mounted on said base member, an electric heater on said heater member, electrical supply terminals on said base member, said heater member being movable between an energized position where a circuit is established from said terminals to said heater, and an off position where said circuit is interrupted, and automatic means for withdrawing said heater member from the on position to the off position upon heating of said heater.

These claims are couched in language quite commensurate with Mead's advance, as the Court of Appeals held.

In reciting his combination, Mead first broadly characterizes the wireless cigar lighter by calling for the removable heating member (the plug) and heating unit or heater (resistance coil) thereon, and the support or socket on which the bodily removable plug is mounted for movement to a position in which the resistance coil is energized from terminals on the support (claim 3). Mead then characterizes the new element of his combination in language commendably limited to the precise point of novelty to wit—"means *responsive to the temperature of said heating unit* for interrupting said energizing circuit" (claim 2) or "for controlling the heating" of the heating unit (claim 3). He limited his assertion of monopoly to the very point of his invention, *i. e.*, the combination of the plug, resistance coil and socket elements with a thermostat responsive to the temperature of the heating element or glow member. This limitation clearly distinguishes Mead's cigar lighter from that of his then-unknown contemporary Copeland (R. 426), as will appear below.

The other aspect of Mead's invention, providing for the return of the plug to open-circuit position, is defined in claim 11. Like claims 2 and 3, it characterizes in broad language the elements of a wireless cigar lighter, pointing out that the heater member (plug) is movable between an energized position and an off position. Mead then specifies the new element of his combination as "automatic means for withdrawing said heater member from the on position to the off position upon heating of said heater". This language is justified because, prior to Mead, the plug returned to open-circuit position when and only when the operator removed his hand therefrom. It might be so hot as to endanger the mechanism itself or not hot enough to light the cigar, cigarette or pipe. While the language of claim 11 is broad, it is, nevertheless, not all-inclusive but again merely defines what Mead taught, *i. e.*, the automatic holding of the plug in "on" position and the return of it

automatically to "off" position only when the heating element is at the right temperature.

Mead's claims left open to the public and to all future inventors all other ways of opening the circuit to the igniter; he did not preempt the field.

These features of Mead's invention (1) the controlling of the energizing circuit in response to the heat of the igniting element, and (2) the automatic return of the plug to open-circuit position so that the operator need not hold the circuit closed, are those which made for the great commercial success of the Casco automatic lighter (exemplified by Pl. Ex. 19, offered R. 37) and are those which, apparently, are indispensable to petitioner here and respondent in Case No. 6, in order to compete. The Court of Appeals in this case and the District Court in Case No. 6 had no difficulty with the language of the claims. As the Court of Appeals said by Judge LEARNED HAND (R. 510):

"The claims being valid and there being nothing in the prior art which requires it, we see no reason to circumscribe them closely to the disclosure. Verbally there is no difficulty. Invention lay in the general conception reduced, of course, to practice as shown but the range of equivalents should be as broad as the actual invention, as we have often said. There is nothing which turns primarily upon the precise details of the structure; the claims are good as they read, if good at all. We hold that they are valid and infringed."

On pages 34-48, *infra* will be found a discussion of petitioner's attack upon the claims in suit.

NOVELTY.

The art prior to Mead is completely devoid of any automatic wireless cigar lighter. That Mead was the first to produce an automatically controlled cigar lighter having an igniting unit removable for use when automatically released cannot be disputed. There is not even a suggestion of this in the art prior to Mead.

In fact, the record shows that Mead was the first to give to the public an electric cigar lighter of any kind having thermostatic control of the heating element or glow member.

The Cigar Lighter Art Prior to Mead.

The wireless cigar lighter displaced for use on automobiles the previously common reel type lighter. In that, the igniting unit was constantly connected to a source of current by a cable, the latter being wound on a spring drum so that the igniting unit and cable could be withdrawn from the drum casing and used to light a cigar, cigarette or pipe. In such devices, the circuit was closed either by a manual operation of a button on the igniter or as a result of the withdrawal of the igniter from its socket on the reel casing.

The *wireless* cigar lighter originated by *Morris*, and for which he obtained letters-patent of the United States No. 1,376,154 (R. 387) differed from the reel type in three major respects: (1) It eliminated the cables and the mechanism for winding and unwinding them; (2) it provided for heating the resistance element or glow member without removing it from its holder, and (3) provided for the complete electrical and mechanical disconnection of the igniting unit from the holder so that the glow member could be applied to a pipe or cigar held in the mouth of the user and the igniting unit could be passed from one person to another, even to the back of the car.

The wireless lighter, however, had serious inherent disadvantages. In the reel type the resistance element could be brought quickly to incandescence and could be used at once, being maintained at incandescence by the continuing flow of electric current during the lighting of the cigar, etc. In the wireless lighter, the resistance element, because of its mass necessary to retain its heat for subsequent use, required a quarter of a minute or so in which to be heated to the proper temperature and during which the operator was obliged to hold the plug in place until the glow member was hot enough. After he concluded that it had become hot enough, he took out the plug used it like a match or a torch, and returned it to the socket.

Several types of wireless cigar lighters appeared on the market and in issued patents over a period of several years from 1919 on. Of these, the patents to Morris, $\pm 1,376,154$ (R. 386), Zecchini, $\pm 1,437,701$ (R. 391) and Metzger, $\pm 1,622,334$ (R. 401), are representative of different constructions of wireless cigar lighters. Morris represents a type in which the circuit was closed by bodily movement of the igniting unit to bring contacts thereon into electrical engagement with contacts on the holder. Zecchini represents a type in which a push button on the igniter unit was pushed-in to engage cooperating contacts within the igniting unit itself. Metzger shows a type in which the plug is rotated to close the circuit.

But, regardless of the particular parts that were moved to close the circuit and heat the heating element, in all of the wireless lighters prior to Mead, it was necessary for the operator manually to hold the igniting unit, or the circuit-closing part, in closed-circuit position during the heating-up period; to observe or guess when the heating element was hot enough for use; and then release the circuit-closing part so as to open the circuit.

The chief exemplifications of the prior art are those just mentioned, and in detail their disclosures are:

Morris No. 1,376,154 (application filed 1919—R. 386):

An igniting unit, shown in Fig. 1, is removably mounted in a holding device, shown in Fig. 3, and when normally supported thereby is in open-circuit position, shown in Fig. 5 with the terminal 7 of the holder out of engagement with the contact 17 on the igniter, so that the circuit through a carbon bar resistance 16 and leading back through the metallic parts of the device to the ground is normally open. The igniter is held in this position by a spring 28 except while the operator pushes in on the handle 15 of the igniter, to cause the contact 17 to engage the terminal 7.

The igniter resistance 16 being concealed within the device, the operator had no way of knowing when the igniter was hot enough for use, and had to depend upon experience or guesswork to determine when to relax the operating pressure on the handle 15 and remove the device for use.

Zecchini No. 1,437,701 (application filed 1921—R. 391):

The igniter, shown assembled in Fig. 2, is inserted in a vertical socket having terminals 5 and 6 engaging contacts 14 and 7 respectively on the igniter. The contact 7 is connected with one end of the resistance coil 11 while the other end of the resistance 11 is connected to a contact pin 13. The other contact 14 on the igniter is electrically connected to a movable contact rod 15 carrying a push button 16. A spring 17 holds the contacts 16 and 13 apart except when the operator presses and holds down the push button 16 to close the circuit through the igniter.

Here again the igniter is concealed within the holding device, and the operator had to depend upon experience or guesswork in determining when to release his finger from the button 16.

Metzger No. 1,622,334 (application filed 1925—R. 401):

Metzger has a holding device 14 and an igniter 24 removably mounted on the holding device. Contacts 2 and 3 on the igniter are normally held out of engagement with the cooperating contacts 17 on the holder. In the operation of the lighter, the user depresses the igniter 24 until the lower ends of the terminals 2 and 3 strike the upper surface of the plug 18. The igniter is then rotated until the pins 32 enter the holes 34 when further rotation will be stopped, and by the inward pressure which is maintained by the operator in order to press the igniter 24 down against the action of the tongues 15 and the spring 28, the terminals 2 and 3 will make contact with the terminals 17. The igniter is held in this position until the user observes that the resistance element 1 has become sufficiently heated to light a cigar or cigarette.

The operation was substantially the same in each of these prior wireless cigar lighter patents. When the smoker desired a light, he pushed in on the handle of Morris (R. 386), or the push button of Zecchini (R. 390) or pushed and rotated the knob of Metzger (R. 401). In each case, he held the movable part in operating position until the igniter resistance was heated. With Morris and Zecchini, the smoker had to use his judgment in determining how long to keep his hand on the plug to keep the circuit closed, for he could not see the igniter resistance, and, as a result, when removed for use, the resistance might have become so hot as to be liable to burn out, or might be so cool as not to give a proper light and caused particles of tobacco to cling to the resistance, and while still glowing, to fall or drop onto the smoker's clothing or the floor of the car (R. 91). The record shows these types in a variety of forms to have been on the market up to Mead's time.

The Thermostatic Control Art Prior to Mead.

Thermostatic controls as such were quite well known when Mead made his invention. They had been used for various kinds of electrical devices, and many patents as evidenced by this record were granted on new combinations solving particular problems and producing new and useful results.

Regarding the bearing of this collection of patents on the validity of the Mead claims, the Court of Appeals stated (R. 508):

“The art had indeed for many years used thermostats to break a circuit when it got overcharged; such uses go back to 1893 (Hammarstrom, No. 493,380). Moreover thermostats had been installed as ‘cut-outs’ in tools—e.g. in sadirons—fifteen years before Mead’s application was filed (Andrews No. 1,025,852). But these uses rather fortify than impair the invention; for, the more general and familiar was the use of a thermostat to cut out an overheated member in an electric current, the more curious it is that no one should have thought of its use to remedy the known defects of ‘wireless’ lighters.”

It seems unnecessary to discuss the patents on thermostatic controls, for our adversaries, while explaining several at pages 11-13 of their brief, do not assert that the foregoing recital is inaccurate, or that any of the other instances of general art add to those mentioned by the Court.

Mead’s Combination Is Not Suggested by the Prior Art.

The patents show many different appliances and devices with thermostatic controls—each organized and having a mode of operation calculated to solve a particular problem.

Thermostatic controls, like vacuum tubes and transformers, were known "tools" in the electrical and other arts, as were levers, gears, etc., in mechanics; and no one may rightfully patent *their use*, for any particular purpose. But, many valuable inventions have been made and patented, which utilize these various tools of the art in new combinations.

This is exactly what Mead did. His *conception* involved the broad idea of incorporating a thermostatic control to perform, with associated parts, wholly new functions in a wireless cigar lighter, *i. e.*, that of relieving the operator of the necessity of manually holding the plug in closed-circuit position, and that of automatically and permanently opening the circuit when the lighter coil is at the temperature predetermined for its proper use. In doing so, his *act* involved the making of a new combination as explained above, having an entirely different mode of operation from any thermostatically controlled electrical device or any wireless cigar lighter then in existence. Either of these differences, under the present circumstances where the advantageous results of the new combination and the new services it renders are so striking, would be sufficient to confer patentability on Mead's work.

Mead's combination was different from any prior thermostatic device, because in Mead the effective operation was placed under the sole control of the temperature of the working resistance, *i. e.*, the resistance that performs the work for which the device is intended. In every prior device having a thermostatic control, either the operation of the thermostat was placed under the control of some other thing, such as the sole plate of an electric iron, or of an auxiliary resistance whose only function was to operate the thermostat *after the lapse of a predetermined time*, or upon abnormally heavy surges of current.

The mere use of a thermostat in a wireless cigar lighter would not necessarily produce Mead's combination. This is demonstrated by the work of Smith in England and Rupps in Germany just after the time Mead made his invention.

Smith British Patent No. 285,200 of 1928 (R. 316): This did not issue until 1928, and hence is not prior art. (Rev. Stat., § 4923; 35 U. S. C. A., § 72.) It has an igniter member 25 (Fig. 4) having an igniter coil 26 and is removably mounted on a holder or base plate 15. An ungrounded contact 27 on the igniter normally engages a contact 28 on the holder, and this is connected to a switch lever 19 having a contact 29 which, when the switch lever is pushed in, engages a live contact 18 to close the circuit to the igniter, the other side of the circuit being suitably connected to the battery. The operator after pressing in the lever 19, continues to hold it in manually during the heating-up period and until the igniter coil 26 is incandescent, whereupon he releases the lever 19 and may then remove the igniter for use.

Smith used thermostats 1 and 2 to open the circuit of his wireless lighter when, through lack of attention, the operator held the circuit closed too long by continuing the pressure on the manually operated switch lever 19. This is a mere safety device. His combination does not automatically hold the circuit closed; it does not insure bringing the heater to just the right temperature for use, but only opens it if the igniting resistance gets so hot as to be dangerous; it is a "hunting thermostat", like Harley's (R. 355), and does not *permanently* open the circuit as in Mead, because it closes the circuit again when the temperature falls.

Rupps British Patent No. 298,073 of 1929 (R. 467): Like Smith, this patent is not prior art against Mead, but it does illustrate another method of manually closing the circuit. In this patent, the igniter coil *k* is mounted in the

igniting unit *c* which is removably supported on a holding device *a*. Contacts *b* and *c* on the holding device are normally out of engagement with contacts *f* and *g* on the igniter. To close the circuit, the igniter *e* is rotated to align the contacts *b* and *f* and *c* and *g* in which position the igniter is allowed to remain while heating up. To open the circuit in this particular instance, the igniter is manually rotated from closed-circuit to the open-circuit position.

Rupps used a thermostat *m* in his wireless cigar lighter, yet he did not make Mead's combination. Rupps' combination simply *keeps* the igniter coil hot by a hunting thermostat once the circuit is manually closed by rotation of the igniter. There is nothing to open the circuit permanently when the proper heat has been reached, or to deliver—so to speak—a plug when prepared for its function.

Separately Smith and Rupps seemed to have been inspired with the nebulous idea (such as Mead must have been at first) of employing a thermostat in a wireless cigar lighter. But that is as far as their imagination went toward Mead; they merely used the thermostat to protect the resistance coil from burning out; they did not conceive of the making of the lighter automatic, relieving the operator of the necessity of holding the circuit closed manually and releasing it when ready for use.

Their patents were applied for before Mead's issued, so they did not know of him, and they failed to reach his invention. But they tend to show just the reverse of the situation where several people independently arrive at the same solution of a problem; which has been taken as evidence of lack of invention (*cf. Concrete Co. v. Gomery*, 269 U. S., at page 184).

So, it is clear, both as to the prior art and as to contemporary improvers, that Mead alone hit the solution which many had sought.

The Missing Link.

Thermostatically controlled electrical devices were quite well known at the time Morris (R. 386) first made the wireless cigar lighter in 1919, and it may be fairly asked why Morris did not make Mead's invention while he was about it. Hammarstrom (R. 352) and the rest were old, and these, it is argued, teach all that had to be known to make Mead. Many of the non-automatic devices were sold and put into use before Mead came.

Now that Mead's invention is known and is part of the sum total of human knowledge, it is a comparatively simple matter to reconstruct a manually controlled wireless cigar lighter of the prior art, as petitioner has done in its model of the Morris patent (R. 144), to incorporate therein a thermostatic control.

It is clear that it was not possible to take the Morris wireless lighter and simply add an old thermostat. Something else had to be done. As petitioner's witness Wolfson admitted (R. 144)—

“Of course, you have to provide an actual thermostatic member with a latch of some sort which would engage with some part of the plug to hold it in the ‘on’ position.”

That is what Mead taught Wolfson to do. Even while testifying, Wolfson seemed to have had Mead on his mind, for in continuing his explanation of the necessary changes he says (R. 144)—

“So that the plug can only go in the socket in one position, somewhat similar to the Mead lighter, so that the opening in the plug which gives access to the heating element is opposite the opening which you have made in the shell under the thermostat.”

Assuming that Morris was not advised on thermostatic controls, then was Zecchini likewise uninformed, or petitioner, or Casco, respondent's licensee—a large manufac-

turer—or Sinko, respondent in the companion case? They were in this very business, yet they did not see the thing that—when seen—was adopted. The answer is clear that it did not occur to any of them, that by going to the thermostatic control art and picking out a suitable thermostat and then making certain modifications and changing the principle of operation, the wireless cigar lighter could be so altered that the improved lighter when offered to the public would make practically obsolete all other lighters. The indisputable fact is that prior to Mead the art either did not conceive the idea of making the wireless lighter automatic, or, if it thought of it, did not know how to do it.

Eventually someone else might have thought of it, but Mead was the first and was way ahead of the rest of the art. As a result of Mead's timely invention, we have been given the benefit of an automatic wireless cigar lighter and the public will have free use of the same when Mead's patent expires on November 19, 1946.

Copeland Did Not Have the Mead Invention.

Petitioner argues that there is no substantial difference between the patent in suit and Copeland. This is in error. Copeland's applications were filed (March and April, 1927) a few months prior to Mead's filing date—August 24, 1927. However, the Copeland patents (R. 419-428) were not published until 1931-1932 respectively, long after Mead filed, the Mead device marketed and the patent issued, and the only defense available (R. 146) in relation to Copeland is that of alleged prior knowledge and invention of something as evidenced by the filing dates of the Copeland applications.

Copeland's cigar lighter invention was different in purpose, in function, in mode of operation and in construction

from Mead's; Copeland's and Mead's approaches are really quite opposite—so much so as to be mutually exclusive. Mead's has been accepted and adopted and imitated by the trade, while Copeland's has not and has no commercial history.

There are two Copeland patents—Nos. 1,838,363 and 1,844,206, filed about the same time.

Copeland No. 1,838,363 (application filed Mar. 9, 1927—R. 419-424): This is not a wireless, or plug, lighter, but a device for dispensing and lighting cigarettes carried in a case 10 from which one may be dropped, upon pushing the handle 21 of the slidable dispenser, so as to fall on supports 28 so that the end of the cigarette may lie against a resistance 27 to be ignited thereby. In a way not clear from the patent, the handle 21 is associated with a switch (Fig. 10) for closing the circuit to the resistance 27 and maintaining it closed for a time sufficiently long to permit the cigarette to ignite. The switch is not described in detail in this patent, but Copeland says "This would obviate the necessity of the operator's holding the slidable dispensing element in rearward position during the time the cigarette is being lighted" (R. 422, ll. 91-95).

Apparently, minor importance is attached to this patent by our adversaries (Pet. Brief p. 17).

Copeland No. 1,844,206 (application filed April, 1927—R. 426): This also is not a wireless lighter, but is for a type of lighter quite like that of the other Copeland patent. It has no supply compartment, but merely a socket 11 in which a cigar or cigarette is placed by hand. In the socket, there is an igniter resistance 14 pivotally mounted on a base of refractory material 15 and held in normal position by a snap or buckling spring 23. When the cigar or cigarette is put into the socket 11 and *pushed down* by the user, the heating unit pivots and causes the spring 23 to snap over toward a thermostatic bar 24 placed in the energizing circuit and carrying a contact which engages the contact

28 to close a circuit from the battery 25 through the igniter resistance coil 14. The cigar or cigarette (if its end survives the crushing due to snapping over the spring 23) is to be ignited by the rush of air across the igniter coil 14 and the end of the cigar, for which purpose the tube is provided with apertures 18 and 19 and baffle 21, see Fig. 6. In a modified form shown in Fig. 6, Copeland provides a separate push button for causing the spring to buckle and close the circuit, thus avoiding the necessity of pressing on the end of the cigar or cigarette.

The circuit is held closed by the buckling spring 23 until, *after the lapse of a predetermined time*, the thermostatic bar 24, due to its bimetallic nature, expands and pushes the buckling spring back across its center line.

In explaining the operation of Copeland, petitioner's witness on direct said (R. 147):

"Now, after a passage of time had been sufficient for the current flowing through both the heater element 14 and the winding around the thermostat which are in series, had heated the thermostatic metal to such an extent as to increase its buckling tendency against the spring, buckling spring 23, it would throw that spring back to the open-circuit position as shown, provided, of course, that the thrust on the cigar had at that time been removed."

The automatic operation of the Copeland device has nothing whatsoever to do with whether or not the cigar or cigarette is lighted, except to give it time to light, or whether or not the igniting coil 14 is hot enough to light the cigar. The period of operation is controlled by the extra resistance, not designated by a reference character, which is wound about the thermostatic bar 24 and which is in the circuit including the bar. The resistance on the thermostatic bar is so arranged that it gradually heats the thermostatic bar and is so proportioned that after the lapse of time which should be enough to light the cigar or cigarette (which, as everyone knows, require very different

lengths of time) it has deformed the bar 24 sufficiently to cause the buckling spring 23 to snap back to the position shown in Figs. 2 and 6 (R. 425).

The delay in opening the circuit controlled by the thermostat 24, therefore, is to give the *cigar* time to ignite, "You have to hold it for a sufficient time to light a cigar" (Wolfson, R. 152). In the finding 3 *f* (R. 486) of the trial Court in this case, it was held that—

"this resistance element did not itself serve as an igniter; rather it served to break the circuit after the lapse of time sufficient to accomplish the incandescence of the igniter and the lighting of a cigar."

This would lead in a path away from a wireless cigar lighter rather than toward it, for in a wireless cigar lighter (as Mead taught and as petitioner follows) the circuit should be controlled in response to the temperature of the igniting coil when it is ready to be used to light the cigar.

The differences between Mead and Copeland may be stated as follows: Mead's is a "wireless" cigar lighter having a removable member or plug serving the function of a match brought to the cigar, cigarette, pipe, or other object to be lighted; Copeland does not have a removable plug (R. 486), it is a self-lighter serving the function of a stove into which the cigar or cigarette must be inserted, and which could not be used at all for lighting a pipe. When the cigar is being lighted, in Mead, the thermostat has operated and the circuit is open; in Copeland, the thermostat has not yet operated and the circuit remains closed. In Mead the energizing circuit is opened as a result of the igniter coil reaching a predetermined temperature, regardless of the time required; in Copeland the circuit is opened as a result of the lapse of a predetermined time, regardless of the temperature of the igniter coil. Mead controls the opening of the circuit by heat from the igniter coil (responsive to the temperature of the heating unit, *Cf.* claims 2 and 3); Copeland controls the opening of the circuit by

heat from a separate coil acting independently of the heat from the igniter coil. Mead's device is essentially heat controlled; Copeland's device is essentially time controlled.

It has been argued that very few structural changes were necessary to convert Copeland into Mead's lighter. Nevertheless, in connection with Copeland, the Court of Appeals in this case held (R. 509):

"it did not lead to the necessary modifications of Morris's lighter, nor did it suggest them; it was actually a step away from the 'wireless' plug which is to be taken out, used like a match or a torch, and replaced, and which alone was capable of answering the needs of the art."

The Court of Appeals further pointed out that "Copeland's invention was still-born" (R. 509). There is no evidence and we have no knowledge that anyone ever made commercially a *wireless cigar lighter* even now, with a thermostat operating on the time principle of Copeland. Certainly, petitioner here, and respondent in Case No. 6 do not, although, as pointed out on pages 32 and 33, *infra*, petitioner seems to have tried to. Mead did not use the time-control principle and petitioner did not adopt it; rather, it adopted Mead's arrangement of controlling the circuit in response to the temperature of the igniter coil.

One cannot borrow a part from the Copeland patent and parts from other patents of the prior art to make a synthetic Mead for two reasons: The first is that each of these patents is sufficient in itself to carry out whatever its inventor was trying to accomplish; the second is that each is a complete lighter of its own sort, good or bad, but none involved Mead's idea. Therefore, by putting any two together, Mead's idea and its fulfillment are not attained. This is demonstrated by the efforts of Mead's contemporaries Rupps and Smith in England, who, although they put old things together, did not accomplish what Mead did, because they did not have Mead's idea. As stated by the Court of Appeals in this case (R. 509):

"Nor is it at all relevant that, after one had once thought of applying Copeland's arrangement to the plug type, the structural changes would have been simple. That is never the test; it is the conception that counts, the act of imagination which assembles the elements into the new and fruitful combination; not the working out of details."

We regret to say that the section of petitioner's brief, dealing with the Copeland patents, is so full of misleading, inaccurate and half true statements that, to refer to them all, would simply compound the fault. Reference to a few flagrant instances will show this.

Petitioner says (page 18 of the brief):

"To say that the temperature of the Mead heating member controls the action or that the 'circuit is opened as the result of the igniter coil reaching a pre-determined temperature, regardless of the time required', is not true".

Petitioner makes no reference to the record to support this statement, and none could be made, because it lacks foundation. The whole philosophy of Mead's invention as described in his specification (R. 291, col. 1, ll. 26-30; R. 293, ll. 41 *et seq.*), and as defined in claims 2 and 3 is that the circuit is controlled or interrupted in response to the temperature of the igniter coil. Obviously, in Mead under similar conditions and identical operating characteristics, the thermostatic element would operate to open the circuit in the same or very close to the same length of time each time it operated, but it would not be *because* of the lapse of time. With varying conditions such as colder weather or a slow-heating igniter coil, the period of time lapsing before the thermostat operates would become variable.

Since cigar lighters are not used under identical conditions at all times, and it is impractical commercially to maintain the electrical values constant, these things will vary and it is perfectly true and unimpeachable to say

that in Mead the circuit is opened as a result of the igniter coil reaching a predetermined temperature regardless of the time required.

Petitioner follows the remark above criticized with this (page 18 of the brief):

"It is also untrue that 'in Copeland the circuit is opened as the result of the lapse of a predetermined time, regardless of the temperature of the igniter coil' as plaintiff has stated heretofore."

The statement attributed to respondent is the absolute truth. Theoretically, it would be possible so to correlate the resistance of the igniter coil of Copeland with the resistance of the thermostat heating coil that the rise in temperature of the two coils would be the same or proportional under the conditions of a still atmosphere maintained at one definite temperature. If this were done, the temperature of the igniter coil would always rise to the same degree in the same length of time, but these ideal conditions do not exist in Copeland. Even if it were possible they would not remain constant in the use of the device. Simple examples will serve to show this. The rate of heating of the igniter coil in Copeland would vary with the temperature of the draft of air flowing across the coil. It would also vary with the character of the smoker's article in contact with it, for a relatively dry cigarette would not conduct as much heat away from the coil with which it is in contact as would a large damp cigar. Yet, neither the draft of air across the igniter coil nor the character of the smoker's article could possibly affect the rate of heating of the coil around the thermostatic switch, and therefore the operation of the thermostatic switch would take place after a lapse of the predetermined time required for the coil of wire wrapped around it to heat it, regardless of how much heat was conducted away from the igniter coil, that is, regardless of the temperature of the igniter coil. All this Johnson shows, R. 211-212.

COMMERCIAL USE OF MEAD'S INVENTION.

The Casco Automatic Wireless Cigar Lighter.

The automatic cigar lighter (Pl. Ex. 19, offered R. 37) of Casco Products Corporation, respondent's licensee, was placed on the market in 1936 and sold extensively. It came after seeing the Mead lighter (R. 75). Defendant's Exhibit B (R. 340, offered R. 68) fairly illustrates the construction of this device which is also substantially shown in the Cohen patent 2,117,232 (R. 306). The holder is provided with bimetallic fingers serving as detents and contacts to engage the shell surrounding the igniter coil which is carried by the igniter plug. When the plug is pushed in, a spring is tensioned at the same time that the contact moves into engagement with the fingers resulting in the closing of the circuit through the resistance, a flange on the igniter also contacting a tongue on the shell of the holder to complete the circuit.

When the igniting unit becomes properly heated for use, the heat from the igniter coil causes the bimetallic fingers to lose their grip on the contact and permit the spring to return the plug to open circuit position whereupon the plug may be removed for use.

It will be seen that the commercially successful Casco device embodies the Mead invention. All the Courts below have held, in substance, that what came after Mead was only "competent designing" (R. 510, near bot.; R. 495, near bot.). The igniter being moved to energizing position is retained in that position until the igniter coil is heated up and heats up the heat-responsive detents, whereupon the circuit is automatically opened and remains open by reason of the return of the circuit-closing contact to normal position.

The Accused Cuno Automatic Wireless Cigar Lighter.

The Cuno automatic wireless cigar lighter is illustrated in Pl. Ex. 1A, 1B, and 1C' (R. 280-281-282, offered R. 15-16). It comprises two main parts—the socket shown on the left of Exhibit 1A (R. 280), and the plug shown at the right. The socket has bimetallic detent latches 16 to engage a flange 35 on the igniter when a knob 22 is pushed in to the position shown in Exhibit 1C' where it is held until the igniting unit reaches the desired temperature, whereupon the heat from the igniter coil causes the bimetallic detent latches 16 to release the contact flange 35 and permit the latter, with the movable parts of the plug, to be returned to open-circuit position shown in Exhibit 1B (R. 281) by a spring 34. When the knob 22 snaps out, the user is apprised that the igniter coil is at the right temperature for use, and the plug shown at the right-hand side of Exhibit 1A (R. 280) may be removed and applied to a cigar, cigarette or pipe to ignite the same.

Petitioner first began to market the accused cigar lighter in the latter part of 1938 or the beginning of 1939, when it was apparently forced by the effect of the success of the Casco automatic lighter, under the Mead patent, on the market. As an examination of Pl.'s Ex. 29 (R. 315—introduced R. 115) shows, from 1936 to 1938, the sale of petitioner's non-automatic cigar lighters had fallen from 920,000 to 220,000 per year. While, naturally, some of this loss of sales might have resulted from the decline of general business, it is no mere coincidence, we submit, that, during this period the sale of Casco cigar lighters did not fall off in anything like this proportion, for, as against the sale of 220,000 Cuno non-automatic lighters in 1938, the sales of the Casco automatic lighters amounted to 977,000 (R. 79). We submit that this indicates clearly that the Casco automatic lighter practically took the market by 1938.

There is no direct evidence as to petitioner's intentions in 1936 with regard to the marketing of an automatic lighter. It is, however, at least persuasive, when consider-

ing the efficacy of the Copeland patent and his method of controlling the circuit, that in 1936 petitioner caused to be filed in the Patent Office an application (now Ashton patent No. 2,084,966—R. 449-458—offered R. 98) disclosing a wireless cigar lighter incorporating a resistance wound bimetallic thermostat such as shown in the Copeland patent. In the Ashton patent it is stated (R. 451—ll. 5-13):

“I propose to provide means for latching a switch to close the circuit through the igniter for a *predetermined time*, and then automatically unlatching this switch and opening the circuit. In the preferred form this is effected by a thermostatic device heated independently of the igniter.” (Emphasis ours.)

By 1939, petitioner apparently decided to abandon any attempt to have the wireless lighter controlled according to a predetermined time, for it came out with the accused device involving heat control from the lighting unit. It seems to us that had petitioner found the Ashton type of device satisfactory, it would not have run the risk of being successfully prosecuted for infringement of the Mead patent by making the circuit controlling member responsive to the temperature of the igniter coil.

The Sinko Automatic Wireless Cigar Lighter.

The Sinko automatic lighter, which is substantially the same as the Casco and the accused Cuno cigar lighters, is before this Court in the Sinko case, Case No. 6.

As to all of these, the same thing may be said that the lower Courts in both cases have said with respect to the Cohen and Johnson patents upon the details of improvement found in Casco lighters, of which petitioner makes so much (*e. g.* brief, p. 29). To use the Court of Appeals' succinct statement (R. 510, near bottom):

“As to the Cohen patent little need be said; here Mead is prior art and anticipates all that can be regarded as more than competent designing.”

Mead's Claims are Valid as to Form and Substance.

As to the form of claims 2, 3 and 11 of the Mead patent, we submit that they define Mead's invention in clear and legal terms. The claims are narrow enough not to be broader than the invention and broad enough not to include unnecessary or optional details.

As typical of the alleged faults which petitioner finds in them, it is said that they do not call for the spring and the latch.

We think this hypercritical: in claim 11, the last element is "automatic means for withdrawing said heater member from the on position to the off position"; how or why should there be means to move from one position to another unless there had been a holding in the on position, as, indeed, is implicit in the next preceding element where the "circuit is *established* from said terminals to said heater" (emphasis ours).

Again, it is said that claim 2 calls for "means for moving said heating member" to closed position, and that the patent does not describe such an element nor is there such an element. It is beyond question that the heating member or plug in Mead is moved. In its operation to close the circuit, it certainly does not move by itself. It has a knob by means of which it is moved, and this is the means of the claim. (All of the devices of the parties have that same means.)

Further referring to claim 2, petitioner asserts that the expression "means responsive to the temperature of the heating unit for interrupting said energizing circuit" is broader than the invention and distinguishes from the art only by function. This is not so, for it was precisely that that Mead had, and the prior art lacked.

Petitioner has attempted to show that in Mead's specification it is suggested that the bimetallic or thermostatic

parts may be heated by the supply current passing through them and the igniter coil, and that, therefore, there is no difference between Mead and Copeland where this happens.

In attempted support of this, petitioner improperly paraphrases the following statement in Mead (R. 293, ll. 104-110):

“In other cases it may be preferred to include the thermostatic element 54 in the circuit from the latch pin 75 so that either the entire or part of the heating current must traverse the bimetallic element 54 and heat the same coincidentally with the heating of the lighting coil.”

On page 18 of its brief, petitioner has entirely misconstrued the substance of this statement to mean that the heating effect on the thermostat of the current flowing through it *alone* controls the operation of the thermostat to open the circuit. The quotation does not infer this, for it is not at all concerned with the operation of the thermostat to open the circuit. It merely states a condition without inferring that this condition is controlling.

The meaning is clear when the quoted statement is read with the context immediately preceding it, to wit (R. 293, ll. 95-104):

“The control action of the thermostatic element 54 depends on the rate at which it is heated while current is being sent through the lighting coil 83. Accordingly, the action of the device will depend on the manner in which the heat control of the thermostatic element will be effected. In some cases the thermostatic element 54 will be heated *only* by conduction of heat from the heating coil 53 (83) and also by radiation and convection.” (Emphasis ours.)

Mead says that in some cases the thermostat may be heated *only* by the heat conducted from the heating coil and also by radiation and convection, and in other cases

may also be heated by heat generated by the passage of all or part of the current through the thermostat. This conclusively establishes that the "heating" of the bimetal by the current was intended to be a mere adjunct of the "heating" of it by the heat from the igniter coil.

Really, in Mead, it does not matter how the bimetal is *heated*—whether "only" by conduction, radiation or convection, or partly also by heat generated by the current flowing through the bimetal. The important thing is that the bimetal operates in response to the temperature, *i.e.*, the degree of heat, of the igniter coil. This is clear from the entire context of the Mead patent. For instance, Mead says (R. 291, ll. 26-32):

"A thermostatic element responsive to the temperature condition of the heating coil releases the engagement of the socket and plug in locked position, whereupon the same are returned to the original position so that the plug may be removed and serve its purpose."

The idea that the thermostat in Mead should be controlled only by the current flowing through it (in which case it would be a mere timing device) is entirely antagonistic to Mead's repeated insistence that the control is in response to the temperature of the igniter coil.

Petitioner and other workers in the art are free, so far as claims 2, 3 and 11 of the Mead patent are concerned, to use without hindrance the arrangement suggested by Copeland, but so far no such device has appeared on the market. Certainly, the accused device of petitioner's has the bimetallic members controlled solely by the heat of the heating element, and so does the Sinko lighter of respondent in Case No. 6, and Casco, the licensee under the Mead patent. Of course, petitioner's argument that the controlling device in Copeland is substantially the same as that of Mead would be better suited if the Mead claims were

broad enough to include time control of the circuit as well as heat responsive control. But unfortunately for petitioner, Mead does not have and Copeland does have the thermostat merely as a timing device calibrated to give sufficient time for the cigar to be lighted and is wholly independent of the temperature of the igniter coil.

Petitioner, while on the one hand asserting that the claim is too broad, on the other, seeks to rob of signification the limitation that the means is responsive to the temperature of the heating unit.

Petitioner also criticizes the claim as being too broad, since it merely calls for the circuit to be interrupted and does not preclude reclosing. From the entire context of the Mead patent, it is clear that the word "interrupted" is used in its ordinary sense. The word "interrupted" is defined in Webster's International Dictionary as follows:

"To break into, or between; to stop or hinder by breaking in; to interfere with the course, current, or motion of; as, to *interrupt* the remarks of one speaking".

This is exactly what happens in the Mead device, for, when the bimetallic member operates the energizing circuit is broken into.

Petitioner charges that the claim does not call for a cigar lighter. But it calls for "a device of the class described", and the device described is one for lighting cigars, cigarettes or pipes, and certainly the claim is therefore drawn upon a cigar lighter. Moreover, the cigar lighter described is a wireless cigar lighter characterized by having a removable heating member, and, since the removable heating member is called for by the claim, it seems to us that it is ridiculous to say that the claim is improper because it calls for a device of the class described.

There are other criticisms, even more casuistic than the foregoing; but we think the samples given will suffice.

We note that petitioner says (page 37 of petitioner's brief)—

“The Court of Appeals for the Second Circuit, in upholding the patent, made no examination of the separate claims in suit, * * *.”

This statement is rather presumptuous. Substantially all that petitioner addresses to this Court upon the subject was advanced to the Court of Appeals, and it must be presumed that it gave it all the attention it deserves. It would appear from the decision of the Court of Appeals that the Court must have given full consideration to the claims, for it said (R. 510)—

“The claims being valid and there being nothing in the prior art which requires it, we see no reason to circumscribe them closely to the disclosure. Verbally there is no difficulty. * * * There is nothing which turns primarily upon the precise details of the structure; the claims are good as they read, if good at all. We hold that they are valid and infringed”.

Evidence Demonstrates that Mead's Invention Was Not Obvious.

That Mead's invention was not obvious is evidenced by a number of persuasive considerations:

(a) **Evidenced by Lapse of Time:** The Morris patent for the wireless cigar lighter was applied for in 1919, and manual wireless lighters were extensively used as shown above, yet it was not until some 6 or 7 years after Morris' invention that it occurred to anyone at all that the nuisance and danger of holding the igniter plug in during the heating-up period could be done away with, or that the regula-

tion of the heating of the igniter coil could be so controlled that it always would be at just the right temperature for use when taken from the holder. Even during the years 1927 and 1928 immediately following Mead's invention when the manually operated wireless cigar lighter had the market, it did not occur to those immediately concerned, such as respondent's licensee, Casco Products Corporation, petitioner here and respondent in Case No. 6, to devise means to make the wireless lighter automatic.

The patented combination was not sufficiently obvious to be recognized by the petitioner or anyone else before Mead, and this condition existed even as to respondent's licensee, Casco Products Corporation, until Mead's device came to Mr. Cohen's attention in 1929 after Mead made his device and so filled a long felt but defined need.

George Frost Co., et al. v. Cohn, et al., 112 F. 1009
1011 (C. C. A. 2).

The effect of the passage of time after need or demand arose and before the invention was made is well known to this court.

Barbed Wire case, 143 U. S. 275, 283; 36 L. Ed. 158.

(b) Evidenced by Apparent Non-Utility: The tendency of logical deduction was against the conception of the thermostatically controlled lighter. Thermostatically controlled devices were known, operating on the principle of opening a circuit permanently when the device got too hot, or opening the circuit after the lapse of a predetermined time. Logical deduction, if the matter had been thought of at all, would have led to the belief that the safety factor of such thermostatic controls was not necessary since the igniting unit was held in by hand anyway, and theoretically at least the operator would not continue the manual opera-

tion of holding the circuit closed any longer than, he would think, necessary. The manufacturer would not be inclined to discern the utility, adaptability and advantage. This is emphasized by the fact that even after Mead marketed his invention on a small scale and when later respondent's licensee, Casco Products Corporation, marketed its adaptation of the Mead invention on a larger scale, infringement did not begin at once but resulted from the force of public demand upon competing manufacturers. The logical tendency was to accept the nuisance and inconvenience of the non-automatic lighter which had been quite well developed, which could be manufactured with much less precision and care, and which was being accepted by the public.

(c) Evidenced by Petitioner's Misdirected Efforts at Improvement: The record shows that even after Mead's invention, the petitioner struggled for years to improve its manually operated lighter as exemplified by the petitioner's Wolfson Nos. 1,732,784 (R. 409), and 1,980,157 (R. 433), and Ashton Nos. 2,060,783 (R. 440), and 2,084,966 (R. 449) patents of record. This effort to improve the non-automatic lighter had progressed to a point where it resulted in a "crowded condition of the art", as the Court of Appeals for the Second Circuit noted in *Cuno Engineering Corporation v. Mechl, et al.*, 113 F. (2d) 862-863, which involved a non-automatic lighter. It would seem that had the provision of an automatic lighter been obvious, petitioner would not have consumed so much time and effort in connection with detailed improvements of the non-automatic lighter, even to the extent of engaging in litigation concerning such alleged improvements.

In the beginning, petitioner apparently sought to make an automatic wireless lighter operate after a "predetermined time" along the lines of Copeland, *Cf.* Ashton patents 2,084,966 (R. 449-458) but nothing came of this. From the testimony of petitioner's witness and chief en-

gineer Wolfson, it appears that petitioner also made some attempts at the Copeland type lighter (R. 151).

Apparently, petitioner was slow to become convinced that Mead was the true solution of the problem. It was only when it appeared that the Mead type definitely took the market that the infringement began.

(d) Evidenced by Misdirected Efforts of Others: This point has been touched upon above, and it is sufficient here to recall that when Smith (R. 316) in England later attempted to make a wireless cigar lighter automatic he did not evolve Mead's combination, and when Rupps (R. 467) in Germany later likewise attempted to make a wireless cigar lighter automatic he did not produce Mead's combination. Both of these were practically contemporaneous with Mead. When Copeland attempted to make a cigar lighter automatic by the use of a thermostat he did not make Mead's combination, but, rather, produced a lighter operating under an entirely different principle, *i. e.*, a self-lighter for cigars and cigarettes, not a wireless lighter (*supra*, p. 27).

Respondent in Case No. 6, the Court will recall, attempted to market its so-called instantaneous lighter without success before it finally acquiesced in the demand of the market and made its accused automatic cigar lighter embodying Mead's invention.

(e) Evidenced by Changes Required in Existing Things to Make Mead's Combination: No thermostatic control of the prior art without change could be added to any wireless cigar lighter of the prior art without alterations to make Mead's combination. The igniter plug had to be changed so that it would stay in closed circuit position, and the thermostat had to be changed to be heated by and to be responsive to the temperature of the working resistance, *i. e.*, the glow member, and release the knob when the resistance

was at the desired temperature. Cf. Wolfson's explanation of the changes necessary to make Morris automatic (R. 144).

(f) Evidenced by the Fact that to Return to the Non-Automatic Lighter would be a Retrogression: Obviously, a cigar smoker would not accept a non-automatic lighter after having had the automatic electric lighter using Mead's invention, for it would be a retrogression to discard the automatic for a non-automatic.

O'Rourke Engineering Co. v. McMullen, 160 Fed. 933, at 938 (C. C. A. 2nd Cir.).

(g) Evidenced by Commercial Success: Commercial success is frequently advanced on the point of invention and lack of obviousness. Generally this is so secondary to a publicity campaign in advertising as to lose its force. Hence there is no such showing of such "prodding" (R. 77-79). Nevertheless, as shown by the chart (Pl. Ex. 26; offered R. 81), the Casco automatic wireless cigar lighter embodying Mead's invention has enjoyed phenomenal commercial success even though these were sold for from 10¢ to 15¢ apiece more than the manual wireless lighters (R. 78). Its customers are the hard fisted automobile manufacturers—not the supposedly gullible public (R. 79-80). In a few years, it practically displaced the non-automatic lighter, and the competitors of respondent's licensee, Casco Products Corporation, were forced to furnish an automatic wireless cigar lighter in order to maintain their trade.

It seems to us that every factor tending to support patentability of Mead's claims as he made them is present in this case.

THE LAW AS TO PATENTABILITY.

It has been demonstrated by the application of tests as to invention laid down by the courts that Mead's invention, in his limited field, required that degree of ingenuity which the courts have come to require as the test of patentability. Degree of invention or ingenuity is not a test contemplated by the Constitution and the patent laws to determine whether or not an invention or discovery shall receive protection.

The Constitution (Article I, Sec. 8, Clause 8) provides:

"The Congress shall have power * * * To promote the progress of science and useful arts, by securing for limited times to authors and inventors the exclusive right to their respective writings and discoveries;"

Under the authority of the Constitution, Congress provided (Rev. Stat. 4886; 35 U. S. C. A., 31):

"Any person who has invented or discovered any *new and useful art*, machine, manufacture, or composition of matter, or any new and useful improvements thereof, not known or used by others in this country, before his invention or discovery thereof, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, or more than two years prior to his application, and not in public use or on sale in this country for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceeding had, obtain a patent therefor." (Emphasis ours.)

[The earlier patent acts (of 1790, 1793 and 1836) were substantially to the same effect.]

It will be observed that there is no standard or degree of inventiveness provided for in the Statute. Congress

did provide that the invention shall be "new and useful". No other condition is prescribed.

The requirement for something additional to novelty and utility was written into the Patent Law in 1850 by the decision of *Hotchkiss v. Greenwood*, 11 How. 248, and has been accepted since then—apparently without any examination of its basis.

Congress could have entailed limitations as to the degree of invention to be rewarded by patents but it has never done so.

It has been demonstrated that the device of the Mead patent is "useful" and that it is "new", for no one prior to Mead produced an automatic wireless cigar lighter or the combination of parts for making it.

The section of the Constitution quoted above provides that authors shall also be given award of a limited monopoly for their works. In the administration of the copyright law the degree of originality of the work is not a test of its validity; but, as to copyrights, the only objective test is novelty.

There is no more reason for requiring a certain unspecified degree of genius in connection with an invention than there would be to require a degree of talent in connection with a "book". It may be merely a compilation, as a directory.

While the word "invention" connotes originality it does not involve any idea that a little, or much, genius is required. Yet, if after the invention is made and known, the problem does not seem to have been so difficult of solution that persons of lesser genius than some undefinable standard might have contrived them, the Courts have frequently held the patents invalid. This is substantially what the Circuit Court of Appeals for the Seventh Circuit did in the Sinko case, Case No. 6.

The degree of ingenuity, we submit, is not the test. Rather, the test is—is the invention new?

However, even with the test of whether the ordinary journeyman might have contrived it, if the combination of elements operates on a new principle or has a new mode of operation the invention has been held patentable. We have been unable to find a single decision by this Court, or by any Court for that matter, in which a patent was held invalid for want of *invention* in which it was recognized that there was a new mode of operation present.

The difficulty comes, of course, in recognizing the new mode of operation. This we submit has been the error of the District Court in this case. The Court of Appeals, however, did recognize it and held the patent valid.

The Decisions of the Courts of Appeals.

The Court of Appeals for the Seventh Circuit we submit decided against the Mead patent on the improper premise that (112 Fed. [2d] 335, at 341):

“All that Mead did was to cause the thermostat to operate on the plug in effect the same as Copeland permitted it to operate on the cigar.”

As matter of fact the statement is not correct; but assuming it to be true, it overlooks the proposition that the suggestion of the change was entirely lacking. The inventive part of Mead's mind would have to tell the mechanic in Mead what to do. Lacking the novel conception, nothing would be produced.

But we have shown above that the relation of Mead to Copeland was not as the Seventh Circuit Court found (pp. 25-30, above). The Court of Appeals for the Second Circuit properly approached the question from the point of

view of the prior art at the time of Mead, as appears from the following statement by Judge LEARNED HAND (R. 509):

"It must be owned that Copeland's figure six did disclose a lighter, manually operated, which, once put in operation, did not require continued pressure, which automatically cut out the current when the glow member was hot enough, and which advised the user of that fact. Moreover, very few structural changes were necessary to convert this into Mead's lighter. The 'tubular extension 16' (page 1, line 71), which held the glow member, was already removable; it was only necessary to make it accessible to the user and to attach the wiring to the 'tubular guide, 11' (page 1, line 62). When that was done, the holder would become a 'wireless lighter' quite as much as Morris's or his successors'. This is the strength of the defendant's argument which prevailed in the Seventh Circuit (*Automatic Devices Corp. v. Sinko Tool & Mfg. Co.*, 122 Fed. [2] 335) and in the district court.

"Nevertheless, it does not persuade us. Copeland's invention was still-born; it did not lead to the necessary modifications of Morris's lighter, nor did it suggest them; it was actually a step away from the 'wireless' plug which is to be taken out, used like a match or a torch, and replaced, and which alone was capable of answering the needs of the art. Nor is it at all relevant that, after one had once thought of applying Copeland's arrangement to the plug type, the structural changes would have been simple. That is never the test; it is the conception that counts, the act of imagination which assembles the elements into the new and fruitful combination; not the working out of details. *Potts v. Creager*, 155 U. S. 597, 608; *Reger & Sons v. Scott & Williams*, 63 Fed. (2) 229, 231 (C. C. A. 2); *Patent Royalties Corp. v. Land O'Lakes Creameries*, 89 Fed. (2) 624, 627 (C. C. A. 2); *Kelley v. Coe*, 99 Fed. (2) 435, 440 (C. A. D. C.). Complicated machines, which are in the day's work for skilled mechanics, will appear magic to a tyro who may find nothing but the obvious in a combination that has failed of

discovery for a decade after the need arose. It would indeed be absurd to rate this as a major invention, yet it did bring to what appears to be its final form a contrivance which had become a standard fixture in motor cars; and upon every detail of these as much human ingenuity has been expended as perhaps on any machine. Just such trifles often help sales; in the severe competition of motor car industry the perfecting of even a trifling furnishing like this may be the object of study and experiment. The art itself shows that this has been true here, as we have already seen; and the best test of what persons of routine ingenuity can do is what they have done. Perhaps, given the same technological stage of development, the same inventions are sure to appear and at about the same time, patents or no patents; but it is certainly unwarranted to assume that the small ones need less stimulus than the great ones; rather the contrary, for minds of the first order are more apt to express themselves without other inducement than the work itself. If patents are to go to those who contribute new appliances that are beyond the limited imagination of the ordinary skilled person, this invention seems to us to merit a patent."

The manner in which the Court of Appeals for the Second Circuit has treated the invention of Mead is supported by the decisions of this Court.

The principle is clearly and forcefully stated in *Diamond Rubber Company of New York v. Consolidated Rubber Tire Co.*, 220 U. S. 428, 435, in which the Court, speaking through Justice McKenna, said—

"Knowledge after the event is always easy, and problems once solved present no difficulties, indeed, may be represented as never having had any, and expert witnesses may be brought forward to show that the new thing which seemed to have eluded the search of the world was always ready at hand and easy to be seen by merely skillful attention. But the law has other tests of the invention than subtle conjectures of what

might have been seen and yet was not. It regards a change as evidence of novelty, the acceptance and utility of change as a further evidence, even as demonstration. And it recognizes degrees of change, dividing inventions into primary and secondary, and as they are, one or the other, gives a proportionate dominion to its patent grant. In other words, the invention may be broadly new, subjecting all that comes after it to tribute (*Railway Co. v. Sayles*, 97 U. S. 554, 556); it may be the successor, in a sense, of all that went before, a step only in the march of improvement, and limited, therefore, to its precise form and elements, as the patent in suit is conceded to be. In its narrow and humble form it may not excite our wonder as may the broader or pretentious form, but it has as firm a right to protection. Nor does it detract from its merit that it is the result of experiment, and not the instant and perfect product of inventive power. A patentee may be baldly empirical, seeing nothing beyond his experiments and the result; yet if he has added a new and valuable article to the world's utilities he is entitled to the rank and protection of an inventor."

Earlier, this Court, in *Potts v. Creager*, 155 U. S. 597, 607, speaking through Justice Brown, said—

"Indeed, it often requires as acute a perception of the relation between cause and effect, and as much of the peculiar intuitive genius which is a characteristic of great inventors, to grasp the idea that a device used in one art may be made available in another, as would be necessary to create the device *de novo*. And this is not the less true if, after the thing has been done, it appears to the ordinary mind so simple as to excite wonder that it was not thought of before. The apparent simplicity of a new device often leads an inexperienced person to think that it would have occurred to any one familiar with the subject; but the decisive answer is that with dozens and perhaps hundreds of others laboring in the same field, it had never occurred to any one before. The practiced eye of an ordinary mechanic may be safely trusted to see what ought to be apparent to every one. As was said by Mr. Justice

Bradley, in *Loom Company v. Higgins*, 105 U. S. 580, 591: 'Now that it has succeeded, it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit. It may be laid down as a general rule, though perhaps not an invariable one, that if a new combination and arrangement of known elements produce a new and beneficial result never attained before, it is evidence of invention.' "

Conclusion.

It is submitted that the Court of Appeals in this case holding the Mead patent valid as to claims 2, 3 and 11 should be sustained.

Respectfully submitted,

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THOMAS J. BYRNE,
Counsel for Respondent.

SUPREME COURT OF THE UNITED STATES.

No. 37.—OCTOBER TERM, 1941.

The Cuno Engineering Corporation,	}	On Writ of Certiorari to the United States Circuit Court of Appeals for the Second Circuit.
Petitioner,		
vs.		
The Automatic Devices Corporation.		

[November 10, 1941.]

Mr. Justice DOUGLAS delivered the opinion of the Court.

This is an action in equity brought by respondent for infringement, *inter alia*, upon claims 2, 3, and 11 of patent No. 1,736,544, granted November 19, 1929, on the application of H. E. Mead, filed August 24, 1927, for a cigar lighter. The District Court held these claims not infringed. 34 Fed. Supp. 146. The Circuit Court of Appeals reversed, holding them valid and infringed. 117 F. (2d) 361. We granted the petition for certiorari, limited to the question whether claims 2, 3, and 11 of the Mead patent are valid, because of a conflict between the decision below and *Automatic Devices Corp. v. Sinko Tool & Manufacturing Co.*, 112 F. (2d) 335, decided by the Circuit Court of Appeals for the Seventh Circuit.

The claims in question¹ are for improvements in lighters, commonly found in automobiles, for cigars, cigarettes and pipes.

¹“2. In a device of the class described, a removable heating member having an electrical heating unit, a socket for receiving and holding said heating member, electrical current supply terminals, means for moving said heating member to a position for establishing an energizing circuit to said heating unit, and means responsive to the temperature of said heating unit for interrupting said energizing circuit.

“3. In a lighting device for cigars and the like, a removable heating member having an electric heater, a support for receiving and holding said heating member, current supply terminals on said support, said heating member being movable on said support to a position where said heating unit is energized from said terminals and means responsive to the temperature of said heating unit for controlling the heating thereof.

“11. In an electric lighter of the class described, a base member, a heater member movably mounted on said base member, an electric heater on said heater member, electrical supply terminals on said base member, said heater member being movable between an energized position where a circuit is established from said terminals to said heater, and an off position where said circuit is interrupted, and automatic means for withdrawing said heater member from the on position to the off position upon heating of said heater.”

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There were earlier lighters of the "reel type". The igniter unit was connected with a source of current by a cable which was wound on a spring drum so that the igniter unit and cable could be withdrawn from the socket and be used for lighting a cigar or cigarette. As the removable plug was returned to the socket the wires were reeled back into it. The circuit was closed either by manual operation of a button or by withdrawal of the igniter from its socket. In 1921 the Morris patent (No. 1,376,154) was issued for a so-called "wireless" or "cordless" lighter. This lighter eliminated the cables and the mechanism for winding and unwinding them; it provided for heating the igniter unit without removing it from its socket, and it eliminated all electrical and mechanical connection of the igniter unit with the socket once it was removed therefrom for use. Several types of the "wireless" or "cordless" lighter appeared.² Morris represented a type in which the circuit was open when the plug rested in the socket and closed when the plug was pushed farther into the socket against the resistance of a spring. In Zecchini (No. 1,437,701) the operator pressed and held down a push-button to close the circuit. In Metzger (No. 1,622,334) the operator closed the circuit by depressing and rotating the plug. In each the operator was obliged to hold the plug, or the circuit-closing part, in place until the heating coil became hot enough for use. After he concluded that it had become hot enough (by observation or guess work) he removed the plug, using it like a match or hot coal, and then replaced it in the socket. Thus these lighters were said to require rather continual attention on the part of the person using them, so that there would be no over-heating or burning out of the heating coil.

This inconvenience and hazard were eliminated, according to respondent,³ by the automatic feature of the Mead patent. Mead added to the so-called "wireless" or "cordless" lighter a thermostatic control responsive to the temperature of the heating coil. In operation it automatically returned the plug to its "off" position after the heating coil had reached the proper temperature. To operate Mead's device the knob on the igniter plug was turned to a point where an electrical connection was established from the battery through the heating coil. There the plug remained tem-

² Some of these are reviewed in *Casco Products Corp. v. Sinko Tool & Mfg. Co.*, 116 F. (2d) 119.

³ A patent holding company which holds the Mead patent under *mesne* assignments. No issue, however, is raised under the assignment statute.

porarily latched. When the heating coil was sufficiently hot for use, the bimetallic elements in the thermostat responsive to the temperature condition of the heating coil caused the igniter plug to be released and to be moved by operation of a spring to open-circuit position. The plug might then be manually removed for use in the manner of a match, torch, or ember. When replaced in the socket after use, it was held in open-circuit position until next needed.

Petitioner makes several objections to the validity of the claims—that they do not comply with the standards for full, clear and concise description prescribed by 35 U. S. C. § 33, R. S. § 4888; that they are indefinite and broader than any disclosed invention; and that they are for a device so imperfect and unsuccessful that a construction of the claims broad enough to include it is not permissible. See *Deering v. Winona Harvester Works*, 155 U. S. 286, 15. We do not, however, stop to consider these objections. For it is our opinion that the Mead device was not the result of invention but a "mere exercise of the skill of the calling", an advance "plainly indicated by the prior art". *Altoona Public Theatres, Inc. v. American Tri-Ergon Corp.*, 294 U. S. 477, 486.

Thermostatic controls of a heating unit, operating to cut off an electric current energizing the unit when its temperature had reached the desired point, were well known to the art when Mead made his device. They had been employed in a wide variety of electrical designs since Hammarstrom in 1893 (No. 493,380) showed a bimetallic thermostat to break a circuit when it got over-charged. A few examples will suffice. Harley in 1907 (No. 852,326) included such a thermostat in an electric heater for vulcanizing, so as to limit automatically the temperature attainable. Andrews in 1912 (No. 1,025,852) showed a bimetallic thermostat in an electrical flat iron designed to open the circuit at a predetermined temperature. In 1919 Newsom (No. 1,318,168) showed an electric coffee cooker in which a thermostat, actuated by the temperature within the receptacle, operated to open and close the circuit intermittently. Stahl in 1921 (No. 1,372,207) showed an electric switch automatically released by operation of a thermostat. Hurxthal in 1925 (No. 1,540,628) showed an electric bread toaster with a thermostat for stopping the toasting when the bread reached a given degree of temperature. Copeland (No. 1,844,206), filed April 18, 1927, before Mead, showed

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an electric lighter for cigars and cigarettes with thermostatic control. It differed from Mead in several respects. Thus in Copeland's device a cigar was inserted in a tube at the end of which was a heating coil. By pressing the cigar against the heating coil (or in another form, by pressing a push-button) a spring was overset and the circuit closed. When the desired temperature of the heating unit was reached, a thermostatic bar pushed back the spring and opened the circuit. Thus in the Copeland device the cigar (or the push-button) was the "means for moving" the "heating member" of the Mead claims so as to establish the energizing electric heating circuit. The advance of Mead over Copeland was the use of the removable plug bearing the heating unit, as in Morris, to establish the automatically controlled circuit of Copeland.

And so the question is whether it was invention for one skilled in the art and familiar with Morris and Copeland, and with the extensive use of the automatic thermostatic control of an electric heating circuit, to apply the Copeland automatic circuit to the Morris removable heating unit in substitution for a circuit manually controlled.

To incorporate such a thermostatic control in a so-called "wireless" or "cordless" lighter was not to make an "invention" or "discovery" within the meaning of the patent laws. As we have shown, both the thermostatically controlled heating unit and the lighter with a removable plug bearing the heating unit were disclosed by the prior art. More must be done than to utilize the skill of the art in bringing old tools into new combinations. *Hailes v. Van Wormer*, 20 Wall. 353, 368; *Pickering v. McCullough*, 14 Otto 310, 318; *Thatcher Heating Co. v. Burtis*, 121 U. S. 286, 294; *Concrete Appliances Co. v. Gomery*, 269 U. S. 177, 184-185; *Powers-Kennedy Contracting Corp. v. Concrete Mixing & Conveying Co.*, 282 U. S. 175, 186; *Carbice Corp. v. American Patents Dev. Co.*, 283 U. S. 420. Respondent, however, contends that wholly new functions were involved in Mead's conception, viz., relieving the operator of the necessity of manually holding the plug in closed-circuit position, and automatically and permanently opening the circuit when the heating coil was at the temperature predetermined for its proper use. And respondent argues, Mead's new combination had an entirely different mode of operation from any "wire-

less" lighter than in existence and from any thermostatically controlled electric device.⁴

We may concede that the functions performed by Mead's combination were new and useful. But that does not necessarily make the device patentable. Under the statute (35 U. S. C. § 31; R. S. § 4886) the device must not only be "new and useful", it must also be an "invention" or "discovery". *Thompson v. Boisselier*, 114 U. S. 1, 11. Since *Hotchkiss v. Greenwood*, 11 How. 248, 267, decided in 1851, it has been recognized that if an improvement is to obtain the privileged position of a patent more ingenuity must be involved than the work of a mechanic skilled in the art. *Hicks v. Kelsey*, 18 Wall. 670; *Slawson v. Grand Street R. R. Co.*, 17 Otto 649; *Phillips v. Detroit*, 111 U. S. 604; *Morris v. McMillin*, 112 U. S. 244; *Saranac Automatic Machine Corp. v. Wirebounds Patents Co.*, 282 U. S. 704; *Honolulu Oil Corp. v. Halliburton*, 306 U. S. 550. "Perfection of workmanship, however much it may increase the convenience, extend the use, or diminish expense, is not patentable." *Reckendorfer v. Faber*, 2 Otto 347, 356-357. The principle of the *Hotchkiss* case applies to the adaptation or combination of old or well known devices for new uses. *Phillips v. Detroit*, *supra*; *Concrete Appliances Co. v. Gomery*, *supra*; *Powers-Kennedy Contracting Corp. v. Concrete Mixing & Conveying Co.*, *supra*; *Electric Cable Joint Co. v. Brooklyn Edison Co.*, 292 U. S. 69; *Altoona Public Theatres, Inc. v. American Tri-Ergon Corp.*, *supra*; *Textile Machine Works v. Louis Hirsch Textile Machines, Inc.*, 302 U. S. 490; *Toledo Pressed Steel Co. v. Standard Parts, Inc.*, 307 U. S. 350. That is to say the new device, however useful it may be, must reveal the flash of creative genius not merely the skill of the calling. If it fails, it has not established its right to a private grant on the public domain.

Tested by that principle Mead's device was not patentable. We cannot conclude that his skill in making this contribution reached

⁴ Respondent argues that Mead's combination was different from any prior thermostatic device because in the latter the operation of the thermostat was placed either under the control of some other thing such as the sole plate of an electric iron or under the control of an auxiliary resistance. The point is that in Mead's combination the effective operation of the thermostat was placed under the sole control of the temperature of the working resistance. We agree, however, with the court below that any such difference was merely one of detail of design on which Mead's invention cannot rest. In any case, it is the temperature created in the vicinity of the thermostat that is effective. The manner in which it is transmitted to the thermostat does not rise to the dignity of a patentable device.

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the level of inventive genius which the Constitution (Art. I, § 8) authorizes Congress to reward. He merely incorporated the well-known thermostat into the old "wireless" lighter to produce a more efficient, useful, and convenient article. Cf. *Electric Cable Joint Co. v. Brooklyn Edison Co.*, *supra*. A new application of an old device may not be patented if the "result claimed as new is the same in character as the original result" (*Blake v. San Francisco*, 113 U. S. 679, 683) even though the new result had not before been contemplated. *Pennsylvania R. R. Co. v. Locomotive Engine Safety Truck Co.*, 110 U. S. 490, 494, and cases cited. Certainly the use of a thermostat to break a circuit in a "wireless" cigar lighter is analogous to or the same in character as the use of such a device in electric heaters, toasters, or irons, whatever may be the difference in detail of design. Ingenuity was required to effect the adaptation, but no more than that to be expected of a mechanic skilled in the art.

Strict application of that test is necessary lest in the constant demand for new appliances the heavy hand of tribute be laid on each slight technological advance in an art. The consequences of the alternative course were forcefully pointed out by Mr. Justice Bradley in *Atlantic Works v. Brady*, 17 Otto 192, 200: "Such an indiscriminate creation of exclusive privileges tends rather to obstruct than to stimulate invention. It creates a class of speculative schemers who make it their business to watch the advancing wave of improvement, and gather its foam in the form of patented monopolies, which enable them to lay a heavy tax upon the industry of the country, without contributing anything to the real advancement of the arts. It embarrasses the honest pursuit of business with fears and apprehensions of concealed liens and unknown liabilities to lawsuits and vexatious accountings for profits made in good faith." Cf. Mr. Justice Campbell dissenting in *Winans v. Denmead*, 15 How. 330, 344, 345, 347; Hamilton, *Patents and Free Enterprise*, Mon. No. 31; *Investigation of Concentration of Economic Power*, Temporary National Economic Committee, 76th Cong., 3d Sess., ch. VIII (1941).

Such considerations prevent any relaxation of the rule of the *Hotchkiss* case as respondent would seem to desire.

Reversed.

Mr. Justice FRANKFURTER concurs in the result.

SUPREME COURT OF THE UNITED STATES.

No. 37.—OCTOBER TERM, 1941.

The Cuno Engineering Corporation, Petitioner, <i>vs.</i> The Automatic Devices Corporation.	}	On Writ of Certiorari to the United States Circuit Court of Appeals for the Second Circuit.
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[November 10, 1941.]

Mr. Chief Justice STONE.

I concur in the result.

I agree that the use of the well known thermostatically controlled heating circuit exemplified by Copeland, with the removable wireless heating unit plug of Morris, in substitution for the manually controlled circuit which had previously been used with the plug, exhibited no more than the skill of the art. The doubt which the court below resolved in favor of patentability because Copeland's invention was "still-born" should, I think, have been resolved in favor of petitioners because Mead was likewise still-born so far as its substantial commercial success is concerned.

The commercially* successful structure for which respondent claims the protection of the Mead patent and which the court below thought satisfied a felt need, is not the structure described by Mead. Both embody the combination of a thermostatically controlled heating circuit with a heating unit borne on a removable wireless plug and used as a means to close the circuit. But they differ structurally in a number of particulars.

To mention only the more important, Mead showed a rotatable socket which is turned by manually rotating the plug when placed in the socket, so as to close the heating circuit. A laterally extending pin projecting from the side of the plug in the Mead structure engages with a spring latch outside the socket to hold the plug and socket in the circuit closing position to which they have been rotated until the latch is released by the thermostatic control, thus permitting the plug and the socket, which is activated by a spring, to rotate back to the open circuit position. The base required for

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the accommodation of the rotating socket and its externally operated mechanism was large and cumbersome. Respondent's commercial structure, like the alleged infringing device, utilizes a fixed socket within which the thermostatic circuit control is located and into which the heat unit carrying plug may be inserted without necessity of rotating it as in the case of the rotating plug with the projecting pin shown by Mead. The thermostatically controlled circuit is closed by pressing the plug further into the socket, the plug being restored to an open circuit position by a spring carried on the plug, when the latch maintaining the closed circuit is thermostatically released.

The commercially exploited device because of the differences in its structure from that shown by Mead is the more compact and easily operated. Its utility as a lighter to be located on the dash of an automobile, which is said to be the merit of the Mead invention, is obvious. If the improvements resulting in such utility involved invention it is not the invention of Mead. If they exhibited only the skill of the art their success cannot be relied on to establish invention by Mead, who did not show or make them. The case is therefore not one for the application of the doctrine that commercial success or the manifest satisfaction of a felt need will turn the scale in favor of invention.

Mr. Justice FRANKFURTER joins in this opinion.